VARIMETER
Undervoltage Relay, Single-Phase
IK 9173, SK 9173

DOLD

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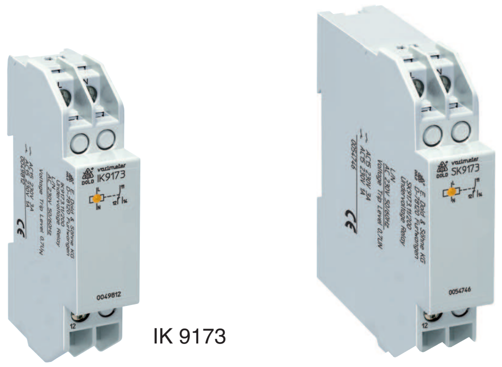
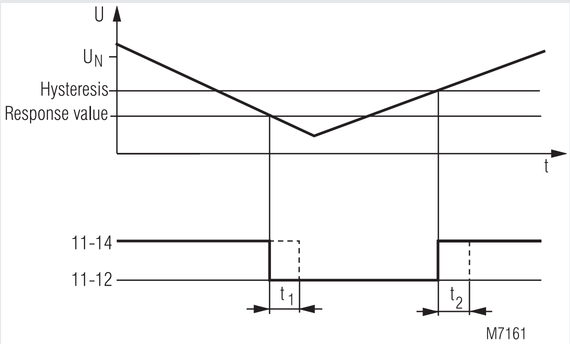


IK 9173   SK 9173

- According to IEC/EN 60 255, DIN VDE 0435-303
- Monitoring of undervoltage
- Without auxiliary supply
- Optionally fixed or settable response value
- N.C. circuit operation
- Optionally with off-delay t_1
- Optionally with on-delay t_2
- LED indicator for state of output relay
- 1 changeover contact
- Devices available in 2 enclosure versions:
  IK 9173: depth 59 mm, with terminals at the bottom for installation systems and industrial distribution systems according to DIN 43 880
  SK 9173: depth 98 mm, with terminals at the top for cabinets with mounting plate and cable duct
- Width 17.5 mm

Function Diagram



Approvals and Markings

CE

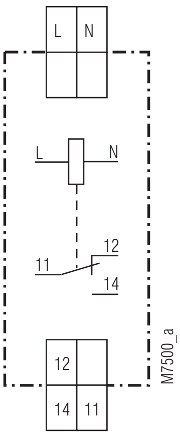
Applications

Monitoring of voltage systems on undervoltage. Automatic switching to emergency supply or of emergency light in the case of phase loss according to DIN VDE 100-710, or DIN VDE 0108.

Variant with t_2 is used in unstable voltage systems, where after phase failure detection the consumers should be energized one after the other. This is done by setting the operate delay of the different relays to different values. This variant is also used where a consumer after only short phase failure should not be started immediately (e.g. compressors).

Suitable for industrial and railway applictions.

Circuit Diagram



IK 9173.11, SK 9173.11

Function

The arithmetic mean value of the voltage L-N is measured.

Indication

yellow LED: output contact active (11-14 closed)

Notes

The time delay for the models with delay t_1 is only active as long as the phase voltage L-N is above 0.5 U_N.

Technical Data

Input Circuit

Nominal voltage U_N:	AC 24, 42, 110, 230 V DC 24, 48, 60, 110, 125 V
Max. overload:	1.15 U_N continuously
Nominal consumption:	approx. 6 VA / DC 1 W
Frequency range:	45 ... 65 Hz

Setting Ranges

Response value:	fixed: 0.7 or 0.85 U_N adjustable: 0.55 ... 1.05 U_N (0.7 ... 1.0 U_N at DC 24 V)
Hysteresis:	approx. 4 % of setting value
Time delay t_1 / t_2:	0.5 ... 20 s
Reaction time of the measuring input at phase failure:	approx. 100 ms

Output

Contacts		
IK 9173.11, SK 9173.11:	1 changeover contact	
Thermal current I_{th}:	4 A	
Switching capacity to AC 15:		
NO contact:	3 A / AC 230 V	IEC/EN 60 947-5-1
NC contact:	1 A / AC 230 V	IEC/EN 60 947-5-1
Electrical life		IEC/EN 60 947-5-1
at AC 230 V, 1 A (cos φ = 0.5):	≥ 3 x 10^5 switching cycles	
Short circuit strength max. fuse rating:	4 A gL	IEC/EN 60 947-5-1
Mechanical life:	≥ 30 x 10^6 switching cycles	

General Data

Operating mode:	Continuous operation	
Temperature range:	- 20 ... + 60 °C	
Clearance and creepage distances		
rated impulse voltage/ pollution degree:	4 kV / 2	IEC 60 664-1
EMC		
Electrostatic discharge:	8 kV (air)	IEC/EN 61 000-4-2
HF irradiation		
80 MHz ... 1 GHz:	20 V / m	IEC/EN 61 000-4-3
1 GHz ... 2 GHz:	20 V / m	IEC/EN 61 000-4-3
2 GHz ... 2.7 GHz:	1 V / m	IEC/EN 61 000-4-3
Fast transients:	2 kV	IEC/EN 61 000-4-4
Surge voltages between		
wires for power supply:	2 kV	IEC/EN 61 000-4-5
between wire and ground:	4 kV	IEC/EN 61 000-4-5
Interference suppression:	Limit value class B	EN 55 011
Degree of protection		
Housing:	IP 40	IEC/EN 60 529
Terminals:	IP 20	IEC/EN 60 529
Housing:	Thermoplastic with V0 behaviour according to UL subject 94	
Vibration resistance:	Amplitude 0.35 mm, frequency 10 ... 55 Hz,	IEC/EN 60 068-2-6
Climate resistance:	20 / 060 / 04	IEC/EN 60 068-1
Terminal designation:	EN 50 005	
Wire connection:	2 x 2.5 mm^2 solid or 2 x 1.5 mm^2 stranded ferruled DIN 46 228-1/-2/-3/-4	
Wire fixing:	Flat terminals with self-lifting clamping piece	IEC/EN 60 999-1
Fixing torque:	0.8 Nm	
Mounting:	DIN rail mounting (IEC/EN60715) or screw mounting M4, 90 mm hole pattern, with additional clip available as accessory	
Weight		
IK 9173:	65 g	
SK 9173:	83 g	

Dimensions

Width x height x depth	
IK 9173:	17.5 x 90 x 59 mm
SK 9173:	17.5 x 90 x 98 mm

Classification to DIN EN 50155

Vibration and shock resistance:	Category 1, Class B	IEC/EN 61 373
Protective coating of the PCB:	No	

Standard Types

IK 9173.11/200, AC 230 V, 0.7 U_N
Article number: 0049812
SK 9173.11/200, AC 230 , 0.7 U_N
Article number: 0054746

- Detection of undervoltage at < 0.7 U_N
- Fixed response value
- Without time delay
- Output: 1 changeover contact
- Nominal voltage U_N: AC 230 V
- Width: 17.5 mm

Variants

IK 9173.11/000

- 0 NC circuit operation
- 0 without time delay
- 3 settable time delay t_1
- 4 settable time delay t_2
- 0 settable response value
- 2 fixed response value

Odering example for variants

IK 9173 .11 /_ _ _ AC 230 V 50/60 Hz 0.55 ... 1.05 U_N 0.5 ... 20 s

- Time delay t_2
- Response value
- Nominal frequency
- Nominal voltage
- Variant, if required
- Contacts
- Type